CASE OF ACUTE CHYLOUS MESENTERIC CYST.

By H. B. REYNOLDS, M. D., San Francisco.

Mr. H. P., 26 years old, good habits, carpenter by trade. Family history and previous history of no consequence. Four years ago was kicked by a horse with considerable force in the epigastrium.

Four weeks ago was seized at night with colicy pains in the abdomen, general in distribution but worse about the umbillicus. The next day he was able to return to his work, though the pain still was present. The third day the pain was worse and he remained at home for several days. Was badly constipated; loss of appetite and some nausea. On returning to work at the end of one week his pain became more severe than at any previous time. He consulted a physician and was again confined to his room. At this time was first discovered a small mass in the right side. The pain continued moderate for 3 weeks, sometimes better and sometimes worse, but in spite of it he was able to continue his work. Continued to be constipated, lost weight, had colicy pains and felt a dragging sense of weight as "though his stomach were dragging on his gullet." The mass had continued to grow steadily until the size of a baby's head and he presented himself to me in this condition.

Examination: Young man, poor in flesh of a somewhat sallow color. Mucous membranes pale. Tongue slightly coated. Heart and lungs negative. The abdomen was retracted except at the side of the tumor. The appendix region was slightly rigid and there was a distinct, though not excessive, tenderness at the classical appendix point. To the left of this spot and extending slightly to the left of the mid-line and upward to the level of the navel was a prominent tumor the size of a fetal head. It was slightly movable, both laterally and up and down. Was moderately sensitive to palpation and quite distinctly fluctuating though tense. Temperature 99.2°; pulse 80; leukocytes, 8,000. A diagnosis of appendicitis with abscess was made and operation advised and accepted.

When anesthetized for operation and the belly wall was relaxed, the mass was found to be much more freely movable in all directions but downward. This immediately suggested to us resemblance to a mesenteric cyst upon which we remarked. An incision through the right rectus after Kammerer's method was made and the appendix was found thickened, kinked sharply on itself and drawn up outside of the colon by a firm adhesion band. The organ was removed. The tumor was found to be a non-inflammatory tense cystic mass between the layers of the mesentery just below the transverse mesocolon. The enlarged arteries and veins of the mesentery coursed over its left surface on their way to the jejunium.

The right leaf of the mesentery was opened and the tumor successfully, though with difficulty, removed by dissection from the vessels. Uninterrupted recovery. For nearly 2 weeks there was an after-noon temperature of 99° to 100°. The presence of some glands at the base of the mesentery suggested a tubercular origin, but the tuberculin test was negative; and the temperature gradually subsided in 2 weeks.

The cyst was of moderately thin walls, about 1 to 2 mm., varying in different places. It contained about 20 ounces of fluid very closely suggestive of cod liver oil emulsion. On standing the fluid separated into a lower third of dark clear serum and an upper two-thirds of cream or fat emulsion identical with chyle. Unfortunately the cyst wall was not saved through an oversight, so no microscopical report can be given.

The history of the cyst with its contents strongly suggest its origin from the rupture of a chylous vessel into a previously existing congenital serous cyst.

A complete and most excellent article on the subject of Mesenteric Cysts with bibliography by Dr. C. N. Dowd of New York will be found in *Annals of Surgery*, October, 1900, p. 515.

CHRONIC SUPPURATION OF THE MIDDLE EAR IN RELATION TO THE WHOLE NUMBER OF EAR AFFECTIONS, WITH SPECIAL REFERENCE TO THE OPERATIVE CASES.*

By CULLEN F. WELTY, M. D., San Francisco.

CHRONIC suppuration of the middle ear is so important that I wish,

First, to establish the proportion that exists tween this affection and the whole number of ear affections.

Second, to establish by systematic diagnosis, following the latest and most approved methods, the proportion of operative cases that exist in the whole number of cases of chronic suppuration of the middle ear.

Third, to show you by statistics why some operators have a greater mortality than others.

Fourth, to demonstrate to you that nearly all these patients can be cured, and the hearing usually benefited.

Fifth, to demonstrate from material at my disposal that 10% or more of all victims of chronic suppuration of the middle ear die from cerebral complications if not operated upon.

NEW YORK EYE AND EAR INFIRMARY.

Total cases, 9,033; chronic suppuration, 1,823; operations, 159.

This shows every fifth case to be chronic suppuration of the middle ear. Every eleventh patient operated upon.

In the absence of a reply to my request for exact statistics of mortality, I estimate it on the basis of other large ear hospitals doing similar work to be 16. The reason of this is that the hospital is not large enough to accommodate all their surgical cases, and they have to confine themselves to those patients with threatening symptoms.

NEW YORK OPHTHALMIC AND AURAL INSTITUTE.

Total cases, 1,760; chronic suppuration, 312; operations, 26.

This shows every sixth case to be chronic suppuration of the middle ear. Every twelfth patient operated upon. Two deaths, or 1 in 13 operations, which is very good when we take into consideration the small proportion of operations in the whole number of cases.

UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA.

Total cases, 638; chronic suppuration, 90; operations, 11.

This shows every seventh case to be chronic suppuration of the middle ear. Every eighth patient operated upon. Two abscesses of the brain and two sinus thromboses, so every 2¾ patient had a serious complication. Reasoning from a statistical standpoint, at least 2 died. Again you see the serious complications are great in proportion to the number of operations. Had these patients been operated upon earlier, this would not have happened. Every fifth patient died.

EAR DEPARTMENT, UNIVERSITY OF HALLE, A. S.

Total cases, 3,335; chronic suppuration, 456; operations, 93.

This shows every seventh case to be chronic suppuration of the middle ear. Every fifth patient operated upon. Seven deaths, or every thirteenth patient. This is one of the most progressive ear hospitals that I have attended. From the number of cases at their disposal, I believe they do more work than any other with which I am familiar. Halle is the home of Schwartze, who was the first to operate for chronic suppuration of the middle ear, some 20 years ago. However, the operation has been considerably modified; at the same time the Halle Clinic has continued to be among the leaders in ear surgery. One would imagine in all these years that they would have made some impression on the whole number of cases, but it seems that the continual increase keeps the hospital of twenty-five beds filled. They have a population of 225,000 to draw ear patients from, and there are other clinics in Halle doing similar work.

UNIVERSITY OF VIENNA.

My statistics are not absolutely correct in regard to this clinic, but I am satisfied that they are so nearly correct that it will not make any difference in the relative proportions.

Total cases, 12,000; chronic suppuration, 2,000; operations, 300.

This shows every sixth case to be chronic suppuration of the middle ear. Every seventh patient op-

*Read at the Thirty-fifth Annual Meeting of the State Society, Riverside, April, 1905.

erated upon. Many serious complications and 30 deaths. The reason for this large proportion of serious complications and deaths is the fact that only the patients with threatening symptoms are subjected to operation, because the hospital is not large enough to accommodate the other class of patients. Some authors advocate this standard of indication for operation, while the most progressive men of the day establish different symptoms and indications for operation.

JANSEN'S CLINIC, BERLIN.

Total cases, private and clinical, 5,993; chronic suppurations, not specified; radical operations, 113.

From the fact that Docent Jansen does so much sinus work, it is hard to determine accurately the relative proportion of chronic suppuration to the whole number of ear affections, and the relative proportion between chronic suppuration and operations. For this reason his report is not included in my statistics. No reference is made to the number of deaths, in his report.

MANHATTAN EYE AND EAR HOSPITAL.

(Report received too late to be included in statistics.).

Total cases, 4,850; chronic suppuration, 875; operations, 81.

Number of deaths not reported. You will notice from the figures that the relative proportion is not changed.

My own cases, private and clinical:

Total cases, 112; chronic suppuration, 34; operations, 9.

This shows every 3 1-3 case chronic suppuration of the middle ear. Every fourth patient operated upon. No serious complications and no deaths. Remaining for operation, 5 (in order of severity):

First—Destruction of attic wall, large masses of cholesteatoma. Hears acoumeter on contact; labyrinth intact.

Second—Caries discovered by use of the probe of the inner attic wall; occasional headache on this side.

Third—Cholesteatoma protruding from the attic.

Fourth—Caries and discharge of fifteen years' duration.

Fifth—Discharge from the ear for the last 6 years; has been under treatment 6 months. Refused to operate, 2; man 72 years old; chronic tuberculosis of the lung; much emaciated and weak; tubercular process of the ear; second, paralytic of many years' duration; will not live long.

Five patients refused operation (in order of severity):

First—Localized pain over one side of the head which had persisted for 3 weeks; meatus and attic full of cholesteatomatous masses; ear discharge for the past 20 years.

Second and third—Extensive destruction of the bony attic wall; masses of cholesteatoma; discharge for 4 years.

Fourth—Cholesteatoma of the attic; cannot demonstrate caries.

Fifth—Caries with discharge for the last 7 years.

None of these patients has a possible chance to recover. The nature of a cholesteatomatous growth is such that it increases in size continually. The only treatment that can be at all effective is to irrigate the attic and antrum with a mild antiseptic solution by the use of a canula in the hope of dislodging the mass piecemeal. Providing you have removed the entire mass, which is rather doubtful, you will have to repeat your procedure in a short time, and so continue for the balance of the life of the individual. Some few patients with caries may recover under careful treatment. The location of the denuded bone or fistula has a great deal of bearing on this. They should be watched and treated carefully for a definite length of time. All conditions being favorable, if they do not recover an operation should be advised.

Three of the patients would have died during the year had they not been operated upon (in order of severity):

First—Dura exposed the size of a large thumb-nail, fistula of the horizontal semicircular canal, facial nerve uncovered for one-third of an inch, thereby giving access to cerebral complications by 3 distinct routes; dizziness so marked at times that the patient would fall on the street.

Second—Cholesteatoma the size of a large hazelnut, filling the mastoid cells, uncovering the sinus, granulation tissue on the sinus wall, Bezold's abscess of the neck.

Third—Pus retention, localized headache increasing in severity during the last two years.

Three would have died within the next few years (in order of severity):

First—The whole of the mastoid cells filled with a carious, necrotic mass; duration of the discharge, 15 years; patient 21 years old.

Second—Cholesteatoma the size of a hazelnut in the antrum; fistula of the attic wall; child, 4½ years old.

Third—The entire attic and antrum filled with granulation tissue; a polypus protruding from the external meatus. Continual pain on this side of head.

Three may have continued to have discharge for the balance of their lives, providing the disease did not progress (in order of severity):

First—Tympanic membrane intact; fistula of the attic wall; at times this fistula was closed by granulations, producing severe localized headache. The suppuration has existed for 15 years.

Second—Granulation tissue the size of a pea in the tip of the pneumatic mastoid; duration of discharge, 5 years.

Third—Caries of the inner attic wall; duration of discharge, 10 years.

TABULATED CASES ACCORDING TO GROUPS.

Case.		Age.	Cured.	Under Treatment.	Hearing.
1st	1	56	6 weeks	.....	Improved
	2	34	13 weeks	.....	Improved
	3	23	6 weeks	.....	Unimproved
2nd	4	22	9 weeks	.....	Unimproved
	5	4½	13 weeks	.....	Improved
	6	50	12 weeks	.....	Improved
3rd	7	25	9 weeks	.....	Improved
	8	12	.....	8 months	Made worse
	9	38	15 weeks	.....	Made worse

Percentage of cured patients, 90.

Average duration of treatment for cured patients, 10 weeks.

Improved hearing, 5, or 55%; unimproved 2, or 22½%; made worse, 2, or 22½%.

One patient has been under treatment for 8 months. A short time since I found a small fistula that was covered by epidermis; this was opened, and I believe the patient will soon be entirely cured. The hearing was made worse. The reason for this is that there was an unusual amount of cicatricial tissue binding down the stapes.

In case nine the hearing was made worse, and the patient was under treatment 15 weeks before he was cured. This was a very complicated case, because the brain was found to be so low, and the wall of the sinus so encroached upon the posterior osseous canal, that the radical operation was impossible. So I performed the Stacke operation, chiseling from within outwards. The cavity was very small, and there was danger of the existence of undiscovered carious bone. The wound was closed by the Körner flap. The attic and antrum completely filled with organized connective tissue, which was afterwards covered by epidermis. This tissue extended into the tympanic cavity, binding down the stapes very firmly, and obliterating the tube as well.

Dench reports in the February number of the *Archives of Otology*, 100 radical operations; 73 cured;

21 not cured, 4 result not known, 2 deaths. The only comment to be made on this is that the mortality is so extremely low that one is led to believe that these must have been selected cases. The mortality in hospitals such as the New York Eye and Ear Infirmary and the Ear Hospital at Vienna is about 10%.

I have 34 ears with chronic suppuration, and in that number I find 21 demanding operation. Of course this is out of proportion to any of the others I have mentioned. I account for it in the following way:

First—The number of cases is not sufficiently large to draw satisfactory conclusions.

Second—So little of this work has been done in San Francisco that the percentage of operative cases is very large.

Third—Five of the patients came to me prepared for operation, as they had been under treatment varying from months to years.

In making a general summary, we find:

Whole number of cases, 26,878; chronic suppuration, 4,715; operations, 598.

Every 5¾ case, chronic suppuration of the middle ear; every eighth patient operated upon; 57 deaths, or 1 for every 10½ patients operated upon.

The conclusions we must draw then are:

First—That every sixth case of ear disease is due to chronic suppuration of the middle ear.

Second—We find 4,715 cases of chronic suppuration, with 598 operations, or one in every eighth patient. The two large clinics that do not have sufficient room to accommodate all of their patients needing operation are included. If allowances are made for this condition, it will bring the proportion to something like every fourth or fifth patient.

Again, we must bear in mind that the work in America has not been carried on so energetically as in Europe; so in making my final conclusions I will say that perhaps every third or fourth patient can be considered an operative one.

Third—The reasons for the high rate of mortality I have spoken of before. It depends largely upon the class of patients operated upon.

Fourth—The table shows the relative proportion of cures, and the proportion in which the hearing was improved, unimproved or made worse.

Fifth—In my own series of cases, six patients would have died within the course of a few years. This is two-thirds of the whole number of operations. Estimating that the same relative proportion exists in the whole number of operations reported, it would mean that 400 of these patients would have died had they not been interfered with; in other words, 8.5% of the whole number of those with chronic suppuration of the middle ear.

We must make allowances for cases overlooked by the best; allowances for those that are not treated at all; and for those that are not correctly diagnosed. This in the aggregate will amount to between 12% and 15% of the whole number dying from cerebral complications. In establishing the percentage in my own series of cases, I find that it is 17½% of the whole number.

Case 1.—Female, age 56 years. When a child, had acute otitis on both sides, following scarlet fever. The ears continued to discharge until she was about 20 years of age. At this time she noticed that she did not hear perfectly, but she had no treatment. She has always been in good health until a year ago, when she consulted a physician about her nose. He removed polyps from both sides. Examining her ear later, he removed, as the patient described it, layer after layer of a whitish substance, from her ears. A few weeks after, the ears began to discharge, and have discharged up to the present time (November 11, 1904). She complains of dizziness for the past 2 months, to such a degree that sometimes she falls. She also complains of blurred vision at times, which soon passes off.

Weber, to the bad ear. Rinne, right ear positive. Bone and air conduction shortened. Rinne, left ear negative. Bone and ear conduction somewhat shortened. Schwabach, almost normal. Right ear, whisper 4 inches, acoumeter 4 inches. Left ear, does not hear whisper on contact. Acoumeter on contact only. Examination, right ear, drum membrane entirely destroyed. The entire attic wall destroyed by caries. A great deal of the posterior superior wall also destroyed by caries. The cholesteatoma protruding. On use of the sound the patient has pain referred to her tongue.

Left ear, drum membrane entirely destroyed; attic wall partially destroyed; cholesteatomatous masses in the attic. I cannot detect caries, but it is undoubtedly present. Middle meatus, both sides, full of polyps; an empyema of the ethmoid cells. November 14, 1904, radical operation. An extensive cholesteatoma filled the attic, the antrum and the mastoid cells. The whole of the posterior osseous and membranous canals were destroyed. The outer attic wall was destroyed. The dura was uncovered by caries the size of the thumb-nail. There was a fistula in the horizontal semicircular canal. The facial nerve was uncovered for about one-third of an inch. One day after the operation, the patient had a slight paresis. It passed away in the course of a few days.

January 10, 1905, hearing improved. Cured.

This is a very remarkable case, because of the three distinct routes by which brain complication might have been produced. I can say further that I have never seen a patient with a triple lesion recover, let alone be cured of the chronic discharge.

Case 2.—Male, age 34 years. June 21, 1904, had the ordinary diseases of childhood; denies venereal diseases; with the exception of influenza, which he had 3 years ago, he has been perfectly well; with his influenza came an acute suppuration of the middle ear. He was well of the influenza in 3 weeks. However, the discharge from the ear continued. He was treated for it for some time then, and has been treated for it at various intervals since, but it was not cured. He never had any symptoms traceable to mastoid disease. Three months ago, or in March, 1904, a swelling appeared in the side of the neck, which was opened and discharged a great deal of pus. The discharge was shortly reduced to a minimum. It was supposed to be a tubercular abscess, and the patient was advised to have it removed. He presented himself to the surgical department of the polyclinic with this history. It was noticed that he had some cotton in his ear, and he was asked what was wrong. He said he had had a discharge from the ear for a long time; he was referred to the ear department for an opinion. Upon cleansing the ear there was found a large perforation in the posterior superior quadrant of the membrana tympani; no granulation tissue nor polypi could be seen; by the use of the Siegle speculum pus was seen to come from the antrum, and it was fetid. Examination with the sound revealed denuded bone. On this, a diagnosis was made that an operation was indicated.

Weber, to the bad ear; Schwabach, lengthened; Rinne, right ear, positive; left ear, negative; right ear, whisper, on contact; left ear, whisper, 25 feet.

In regard to the swelling in the neck, it was probably associated with the mastoid known as Bezold's abscess. Operation performed in the usual way, closing with the Panse flap. The wound was left open. On opening the mastoid cells a large, infected cholesteatoma the size of a hickorynut presented; the bony sinus wall was completely destroyed and the sinus covered with granulations. A communication with the abscess in the neck was found, which proved to be a long pocket-like formation with an opening at its upper end. This part of the operation was done by Dr. Ryfkogel. He dissected out the infiltrated tissue and glands, curetted, and applied pure carbolic acid and alcohol and closed the wound. Healing, almost by primary union. The hammer and incus were not carious. The patient made an uninterrupted recovery in 13 weeks, which is a little better than the average for the open method of treatment. His hearing in the ear operated upon improved so that he could hear a whisper at 3 feet, which means good hearing for ordinary conversation. It will be seen from the pathological lesion found at operation that this patient would soon have had a serious cerebral complication.

Case 3.—Male, aged 23 years. July 2, 1904. When 6 years of age had scarlet fever. This was followed by acute otitis; the ears have discharged continually ever since. Otherwise he had had good health. Two years ago, had the ossicles removed from the right ear to cure this discharge. However, it was not successful. Added to the complication of chronic suppuration, he began to have periods when the ear would not discharge, accompanied by more or less headache on the same side. This has gradually increased in severity.

Weber, to the right ear. Schwabach, lengthened. Rinne, right ear, negative; bone conduction lengthened; air conduction shortened. Rinne, left ear, negative; bone conduction lengthened; air conduction shortened. Right ear, whisper on contact; watch on contact. Left ear, whisper on contact; watch on contact.

Right ear, entire destruction of drum membrane; part of the attic wall destroyed; cannot detect necrosed bone; pus very offensive, and coming from the antrum by the use of the Seigle speculum. Left ear, a large perforation in the posterior superior quadrant; part of the hammer destroyed; pus coming from the antrum. The right ear was operated upon by the Schwartze operation. A polyp was found which had acted like a valve, between the antrum and the attic. The attic and the mastoid cells were full of granulation tissue. Recovery in 6 weeks. Hearing unimproved.

Case 4.—Female, age 21 years. Had the ordinary diseases of childhood; acute otitis following scarlet fever at the age of 8 years. The discharge continued uninterruptedly for 2 years; adenoids were removed and some drops were used for the ear. The ear remained perfectly

dry for one year. Since that time it has discharged more or less.

Weber, to the good ear. Rinne, right ear, positive; slightly shortened bone conduction. Rinne, left ear, negative; considerably shortened bone conduction and very much shortened air conduction. Schwabach, somewhat shortened. Right ear, whisper 25 feet. Left ear, whisper on contact; acoumeter on contact. Caries of the attic wall with a fissure extending into the same. Some granulation tissue about it, which has a tendency to bleed on manipulation of the probe.

January 19, 1905, radical operation in the usual way, closing by the Körner flap. On removing the periosteum from the mastoid the bone showed a dark blue color; this was produced by the carious necrotic mass of the mastoid cells. The hammer and the incus were almost destroyed by caries. The wound has been dressed every second or third day. The patient complained so much of dizziness and headache, that she remained in the hospital 30 days. I attribute some of the headache, if not all, to a compound astigmatism, as it was relieved by the continuous use of her glasses. While in the recumbent position she was not dizzy. When she assumed an erect position she would become very dizzy, and at one time fell from her chair. I hardly know how to account for this dizziness; probably the stapes was partially or completely removed during the operation; it might be due to a fracture of the horizontal semicircular canal, or it might be from direct traumatism. Shortly after the operation she was reported by the nurse to be delirious; this happened two or three times. She is a highly sensitive, hysterical woman; I diagnosed the case as hysteria at the time. Her mental condition has improved gradually until the present time (March 1st) she is quite free from the aforesaid symptoms. She complained of headache, or soreness about the side of the head, but on percussion, no tenderness or soreness was elicited, nor did it aggravate the condition she complained of. When she began to walk, her gait was that of a person with a fractured pelvis. Eye background perfectly normal. Posterior wound healed by primary union March 27th, ear absolutely dry. Hearing unimproved.

Case 5.—Boy, 4½ years old. January 4, 1905. The father states that for the past 6 months the ear has discharged; does not remember that it ever discharged before. The discharge is very offensive. By examination, a polypus was found filling the entire meatus and protruding from it. This was cleansed and removed by a snare. However, I was not able to determine the origin of this polypus. A few days later the patient was anesthetized and the remainder of the polypus was curetted away and a more thorough examination made. I was able to demonstrate that the origin of the polypus was from a fistulous opening through the bony walls of the attic. There was considerable denuded bone that I could feel with the probe. On this I recommended operation. January 15th the operation was performed in the usual manner, closing with the Panse flap. On opening the attic a cholesteatoma the size of a hazelnut was found. The facial nerve was accidentally uncovered for a quarter of an inch; however, there was not the slightest suggestion of paresis or paralysis following this. The patient was up and about the ward in 6 days; on the seventh day he had a temperature of 104°; this diminished from day to day, lasting a week or 10 days. I can give no clear cause for this, with the exception that the parents gave the child sweets the day prior to his fever. March 10th, posterior wound entirely closed. April 10th, ear entirely dry; hearing very much improved.

In regard to the pathological lesion, I would say that the child evidently had had an acute otitis very early in life, which became chronic. There was such a slight discharge from this that it was not noticed by the parents until 6 months ago. Had this patient not been operated upon the ultimate result would have been death.

Case 6.—Female, age 50. January 1, 1905. Fifteen years ago had severe pain back of the ear, which lasted for several months. Has had more or less continuous pain ever since. Has been treated off and on for the last 14 years by a general practitioner. Complains of acute exacerbations of pain, limited to this side of the head. For 2 or 3 weeks has had headache and severe pains back of the ear. Chronic discharge from both ears.

Weber, in both ears. Schwabach, shortened. Rinne, right ear, negative; bone conduction shortened. Rinne, left ear, negative; bone conduction shortened, but not so much as in the right ear. Right ear, acoumeter, 3 inches; left ear, acoumeter, 1 foot. Have to speak in a very loud voice to make her hear at all. Right ear, drum membrane entirely destroyed; a mass of cholesteatoma protruding from the attic; a fissure in the anterior part of the attic wall. Left ear, a large polypus filling the entire meatus and protruding. The following day I removed the polypus; two days later the discharge was very offensive, and cholesteatomatous masses were protruding from the attic; the posterior superior wall was bulging. January 5th, radical operation; closed with the Panse flap; cholesteatoma found in the attic; the antrum was full of granulation tissue. March 29th, ear perfectly dry; hearing improved. The other ear remains to be operated upon.

Case 7.—Male, age 25 years. When 11 years old had acute otitis of both ears. The left ear discharged for about 2 months; the right ear has discharged ever since the attack; he says he does not hear at all or very little from this ear. Complains of frequent pain, deep seated in character. Three years ago had a particularly severe attack of pain, which was followed by a copious discharge, and the pain was relieved.

Weber, in the bad ear. Schwabach, lengthened. Rinne, right ear, negative; bone conduction lengthened. Rinne, left ear, positive; bone conduction normal. Right ear, acoumeter, 3 feet; whisper, 18 inches. Left ear, acoumeter, full distance; whisper 25 feet. The drum membrane of the affected ear was adherent to the inner wall. A fistulous opening in the walls of the attic; a fistulous opening into the antrum; granulations protruding from both. The discharge is always very offensive.

November 28, 1904, radical operation; closed by the Körner flap. The pathological conditions found at operation do not vary from those already described. This patient suffered from pus retention 3 years ago, according to symptoms given by the patient; such cases as these never get well of themselves, and are very likely to leave serious cerebral complications.

Case 8.—Boy, 10 years of age. August 16, 1904. Had scarlet fever when 3 years old, which was followed by acute otitis on both sides. He has had intermittent treatment extending over considerable length of time ever since. Otherwise he has had good health.

Weber, in both ears. Schwabach, probably slightly lengthened. Rinne, right ear, negative; whisper 10 feet. Rinne, left ear, negative; whisper 7 feet. Examination, right ear large perforation of the drum membrane in the anterior inferior quadrant. No denuded bone can be detected. By the use of the Siegle speculum pus comes from the eustachian tube. At a later examination the pus was seen to come from the attic. The discharge ceases for 2 or 3 days and then reappears. Left ear, the perforation of the drum membrane is in the posterior superior quadrant; considerable pus, not very offensive. By the use of the Siegle, pus comes from the antrum; denuded bone can be detected in this region; what could be seen of the attic wall was whitish in appearance.

August 18, 1904, operated in the usual way, closing by the Panse flap. The entire attic and antrum were covered with epidermis, which had grown from the external meatus replacing the mucous membrane, a pneumatic mastoid. In the bottom of this cavity were dark red granulations about the size of a large pea. This could not have resulted in a spontaneous cure, because the epithelium would have been cast off as soon as the granulations were reached, forming a cholesteatoma. He has been under treatment 8 months; about 4 weeks ago I discovered a small fistula that was covered by epidermis, which I think is the cause of the long delay in his recovery. I opened this fistula, and after a few days the ear was comparatively dry, with the exception of a slight oozing that takes place from a surface not covered by epithelium. I expect the ear to be perfectly dry in a week or two. The hearing in this case was made worse, due to an unusual amount of organized connective tissue over the stapes.

Case 9.—Male, aged 38 years. October 15, 1904. Nine years ago, had acute otitis, which continued to discharge for several months. It has discharged off and on during the entire 9 years. For the last 8 months he has had a continuous discharge, accompanied by more or less pain back of the ear. The discharge during this last period has been very offensive.

Weber, in both ears. Schwabach, lengthened. Rinne, right ear, positive. Rinne, left ear, positive. Right ear, whisper 25 feet. Left ear, whisper 12 feet. Examination, right ear, membrane intact; perfectly healthy. Left ear, a heart-shaped perforation of the whole of the inferior part of the membrane. By the use of the Seigle speculum, pus comes from the attic. By examination with the probe, caries is found in the inner attic wall.

November 10th, Stacke operation closed by the Körner flap. On taking away the first rim of bone, the dura was uncovered. This was because the brain encroached so much on the attic and antrum, leaving no room to proceed farther in this way. I then began the removal of the posterior osseous canal lower down, in hopes of entering this way; however, the second piece of bone I removed uncovered the sinus. There was only a small bony partition between the posterior membranous canal and the wall of the sinus, rendering it absolutely impossible to proceed with the radical operation. Therefore, the Stacke operation, which is especially adapted to such cases, was substituted, removing the outer wall of the attic and antrum from within outwards. The cavity presented the appearance of an inverted cone. On account of its diminutive size the after-treatment was not entirely satisfactory. The hearing was not improved because the antrum and attic and part of the tympanic cavity filled with organized connective tissue covered by epidermis. This tissue presses on the stapes so firmly as to impair his hearing. He hears a whisper 3 feet in the ear operated upon. Under treatment 15 weeks before the ear was absolutely dry.

DISCUSSION.

Dr. Barton J. Powell, Stockton. Dr. Welty has secured some valuable statistics, and they certainly compare most favorably with other authors of this country and Europe. The people are gradually being educated as to the seriousness of middle ear trouble. Every aurist has a number of suppurative otitis cases, which he feels need operation, and the patients in recent years are learning to demand a radical operation. It is to be hoped that Dr. Welty will continue to keep a careful record of these cases so that we can again have the pleasure of hearing from him on the subject.